

REMARKS

Claims 1, 2, 4-13, 15-21, and 23-28 remain pending in the present Amendment.

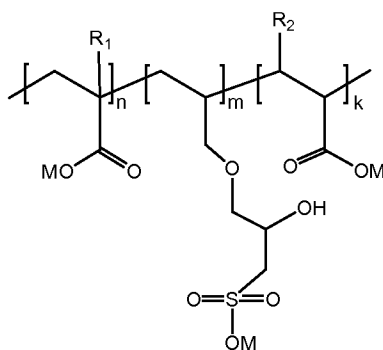
Support for the amendment to Claims 1 and 19 can be found throughout the original specification including the examples.

Reconsideration and allowance of the claims is respectfully requested in view of the foregoing amendments and the following remarks.

Claim Rejections under 35 USC 103

A. Claims 1, 2, 4-13, 15-21, and 23-28 stand rejected under 35 USC 103(a) as obvious over Nishino (EP0814193) in view of Yamaguchi (US Pat. No. 5,135,677). Applicants respectfully traverse.

Independent claims 1 and 19 are generally directed to a process and composition for treating fibre materials, respectively. The process generally includes contacting the fibre material with the composition in an aqueous media, wherein the composition includes a chelating agent and a single polymer having the following general formula



wherein

R₁ is a hydrogen atom or an alkyl group containing 1 to 12 carbon atoms,

R₂ is –COOM or –CH₂COOM,

M is a hydrogen atom, an alkali metal ion, an alkaline earth metal ion, an ammonium ion or a mixture thereof,

n, m and k are molar ratios of corresponding monomers, wherein n is 0 to 0.95, m is 0.05 to 0.9, and k is 0 to 0.8, and $(n+m+k)$ equals 1, and the weight average molecular weight is between 500 and 20,000,000 g/mol. The claimed invention makes it possible to partly or completely replace water glass (i.e., silicates) that are typically used in alkaline peroxide bleaching of mechanical and de-inked pulps.

Nishino is generally directed to a stabilizing agent for peroxide-bleaching procedure comprising a first polymer (component A), a second polymer (component B), a chelating agent (component C) and optionally a water-soluble magnesium salt (component D). The first polymer is characterized as a homopolymer of α -hydroxyacrylic acid or a copolymer of α -hydroxyacrylic acid and a comonomer, such as acrylic acid, methacrylic acid, maleic acid, acrylic amide, and the like. The second polymer is a homopolymer or copolymer of acrylic acid, methacrylic acid and maleic acid. There is no disclosure or suggestion of a single polymers; rather, Nishino clearly requires at least two polymers in its composition.

Yamaguchi is generally directed to a process for producing an acid-type polymaleic acid and acid-type maleic acid copolymer and also the usage of the acid-type polymaleic acid and acid-type maleic acid copolymer produced by the process as a water-treating agent and detergent additive. It is important to note that Yamaguchi does not disclose or even suggest anywhere the combination of a polymer and a chelating agent. Instead, Yamaguchi merely discloses a composition of monomers and a chelating agent that are used to synthesize the acid-type maleic copolymers. Moreover, the use of the chelating agent is to bind metals that deleteriously affect polymerization, which is markedly different from a process of treating a fibre material since the bound metals are those harmful to pulp bleaching. Like Nishino above, Yamaguchi also discloses and suggests the use of more than one polymer in its composition.

For an obviousness rejection to be proper, the Examiner must meet the burden of establishing that all elements of the invention are disclosed in the prior art; that the prior art relied upon, or knowledge generally available in the art at the time of the invention,

must provide some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combined references. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir.1988). Moreover, the Examiner is expected to meet the burden of establishing why the differences between the prior art and that claimed would have been obvious. (MPEP 2141(III)) “A patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.” *KSR Int’l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1741 (2007). To find obviousness, the Examiner must “identify a reason that would have prompted a person of ordinary skill in the art in the relevant field to combine the elements in the way the claimed new invention does.” *Id.*

A *prima facie* case of obviousness has not been established because there is no teaching or suggestion of the claimed process or composition that includes a single polymer as claimed. Both Nishino and Yamaguchi require two or more polymers.

Moreover, Applicants disagree with the Office’s conclusions that that it would have been obvious to one of ordinary skill in the art at the time of the invention to make the simple substitution of Nishino’s alpha-hydroxyacrylic acid with Yamaguchi’s 3-allyloxy-2-hydroxypropanesulfonic acid because Yamaguchi purportedly teaches that both are viable alternatives to each other. The copolymer of Yamaguchi is produced from maleic acid (monomer A) and another unsaturated monomer (B) and this monomer (B) includes a very long list, wherein α -hydroxyacrylic acid and 3-allyloxy-2-hydroxypropanesulfonic acid are mentioned among numerous other monomers (column 5, line 9 – column 6, line 3). In the case where the acid-type maleic acid copolymer is intended for use as a water-treating agent or detergent additive, the adequate water-soluble monomer is selected from a much shorter list including 3-allyloxy-2-hydroxypropanesulfonic acid. Thus, it can be concluded that the 3-allyloxy-2-hydroxypropanesulfonic acid monomer is suitable in applications relating to water-treating agents and detergent additives. Thus, considering that Nishino does not relate to such applications, one of ordinary skill in the art skilled man would not substitute

Nishino's alpha-hydroxyacrylic acid with Yamaguchi's 3-allyloxy-2-hydroxyprop-anesulfonic acid.

Moreover, with respect to Yamaguchi, the Office states under paragraph no. 9 that "Yamaguchi teaches a process for the treatment of a fiber material comprising contacting the fiber material in an aqueous medium ... with a chelating agent ... and a polymer having the provided formula ...". Applicants respectfully disagree with the assertion that Yamaguchi teaches a process or a composition comprising a chelating agent and a polymer of formula I of claims 1 and 13 of the present invention. In particular, Yamaguchi's only use of a chelating agent is in the synthesis of the acid-type maleic acid copolymer (column 6, line 21 to column 7, line 18, specifically column 7, lines 6-18). In this synthesis, the chelating agent is used in conjunction with a metal ion that is present at a concentration, most broadly, of 0.5-500 ppm relative to the monomer composition (column 6, lines 39-4; column 7, lines 6-8). Thus, a skilled person would use the Yamaguchi's chelating agent at a concentration comparable to Yamaguchi's 0.5-500 ppm metal ion concentration. This is further illustrated by Example 81, where the chelating agent 1-hydroxyethylidene-1,1-diphosphonic acid is used at a concentration of 22.5 parts per million relative to total monomer ($10^6 \times 0.005 / (196 + 26)$). Such a chelating agent concentration of at most 500 ppm per one part of monomers is also far outside Applicants copolymer to chelating agent to alkaline earth metal compound ratio of 10 to 60 : 20 to 70 : 10 to 50. Still further, as discussed briefly above, Yamaguchi's chelating agent is for binding metals harmful to polymerization of the maleic acid copolymer. This is markedly different from applicants' claimed process and composition for treating a fibre material since the chelant is utilized for removing ions harmful to pulp bleaching. Because of this difference, Yamaguchi utilizes a significantly lower amount (0.5 to 500 ppm as noted above) than applicant (0.0 to 10 kg per ton of dry fibre material).

As previously noted, Yamaguchi fails to teach or even suggest a composition of a single polymer and a chelating agent. Instead, Yamaguchi discloses only a composition of monomers and a chelating agent in the production of acid-type maleic acid copolymers. The copolymer is produced from maleic acid (A) and other water-soluble unsaturated

monomer (B) (column 5, lines 9-11). The water-soluble unsaturated monomer includes 3-allyloxy-2-hydroxypropanesulfonic acid (column 5, lines 36-37). Thus, Yamaguchi appears on a general level to teach copolymers of maleic acid and 3-allyloxy-2-hydroxypropanesulfonic acid (AHPS). The copolymer may be used as a water treating agent, detergent builder or chelating agent (column 1, lines 15-16). The polymer may also be used as a scouring assistant for cellulosic fiber, bleaching assistant for cellulosic fiber, pretreating agent for pulp bleaching, ..., deinking assistant for waste paper regeneration (column 9, lines 23-31).

In view of the foregoing, the rejection is requested to be withdrawn.

B. Claims 19-21 and 23-25 stand rejected under 35 USC 103(a) as obvious over Nishino (EP0814193) in view of Maeda (US Pat No. 6,780,832). Applicants respectfully traverse.

Nishino is discussed above. For reasons previously discussed, Nishino fails to teach or suggest a single polymer in its disclosed process and composition.

Maeda is generally directed to a water-soluble polymer allegedly exhibiting a high calcium-ion-scavenging function and a high clay-dispersing function even in high-hardness water (Abstract). These polymers are characterized by Maeda as useful in detergent compositions. Maeda especially relates to a polymer mixture comprising polymer A and polymer B as essential components. Maeda, like Nishino, fails to teach or suggest a single polymer.

A prima facie case of obviousness has not been established because the cited references fail to teach or suggest a composition including a chelant and a single polymer as claimed.

Moreover, Applicants respectfully assert that claims 19-21 and 23-25 are patentable over Nishino in view of Maeda because the cited references are not combinable in the manner set forth in the Office Action. Although Nishino relates to the same technical field as the present invention, i.e., treatment of cellulosic pulp, especially

pulp bleaching, Maeda does not. Instead, Maeda mainly relates to detergent compositions, inorganic-pigment dispersants, water-treating agents, and fabrics-treating agents, wherein properties such as a high calcium-ion-scavenging function and a high clay-dispersing function even in high-hardness water are desired (Abstract). The present invention does not aim at such properties which are typical for detergent compositions. One of skill in the art would not look to Maeda's disclosure of detergents for bleaching fibre materials. As set forth above, Maeda discussed chelates only in connection with detergent compositions not related to bleaching cellulose fibers/pulp. The common feature of Nishino and Maeda is that both references teach a method of utilizing a maleic acid based polymer; component B of Nishino and polymer A of Maeda. However, besides this polymer Nishino includes a α -hydroxyacrylic acid based polymer (component A) and Maeda includes a polymer B, which encompasses a huge number of different polymers which preferably are poly(carboxylic acid)-based polymers although also various other polymers are mentioned, such as acrylic acid/sulfonic-acid-group-containing monomer(-based) copolymer or methacrylic acid/sulfonic-acid-group-containing monomer(-based) copolymer (column 9, lines 45-48).

In view of the foregoing, the rejection is requested to be withdrawn.

Provisional Double Patenting Rejection

A. Claims 1, 2, 4-13, 15-21 and 23-28 stand provisionally rejected on the ground of non-statutory double patenting as being unpatentable over claims 1-8, and 13-28 of copending Application No. 11/596,140.

B. Claim 1-10 and 13-28 stand provisionally rejected on the ground of non-statutory double patenting as being unpatentable over claims 1-28 of copending Application No. 12/523,381.

Since the above noted applications (11/596,140, or 12/523,381), have not been patented, there is no way that double patenting can be determined (nothing is patented and there is no way to compare the final claims until one of the cases has been patented

and the other claims are otherwise allowable). Hence, the Applicants respectfully request that the Examiner withdraw these obviousness double patenting rejections until the claims are in final form and otherwise in condition for allowance, and the case over which double patenting is alleged is allowed. Until such time, there is no double patenting and no way to determine double patenting.

It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants. Accordingly, reconsideration and allowance is respectfully requested.

It is believed that all the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130.

Respectfully submitted,

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